

Analysis of Various Physical and Chemical Parameters of River Jehlum in Srinagar City

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ABSTRACT- Water tests were gathered from stream Jehlum at various areas over a stretch of 20 km from Lasjan to Parimpora in the Srinagar city of Jammu & Kashmir (UT), India. These examples were dissected for 14 water quality factors - physical and chemical boundaries. The information related physico-chemical boundaries of water of waterway Jehlum acquired during the review have been referenced underneath in Table 1. During the course of study, it was additionally seen that the convergence of a portion of these boundaries was not in agreement to as far as possible suggested by World Health Organization. This could have a unmistakable effect on life. The outcomes acquired during the review show that the topographical area and season straightforwardly affect the different physico-substance boundaries of stream Jehlum. It is accepted that this study will be useful in figuring out control technique in not so distant future.

KEYWORDS- Chemical analysis, Metal content, River Jehlum, Monitoring, Contamination

I. INTRODUCTION

Water is without a doubt one of the valuable normal assets existing on planet earth. Regardless of whether we perceive this reality, we dismissed it by contaminating our water bodies like streams, lakes and seas. It is the major obligation of humanity to save water assets. Streams are the main assets of water supply in various nations of the world [1]. At the beginning of a stream, the water is generally unadulterated as it streams downstream. In India, streams are getting contaminated step by step. An essential justification behind this is that each of the three significant wellsprings of contamination (industry, agribusiness and home-grown squanders) are concentrated along the stream belt and work together to diminish nature of water which is a reason for caution and needs to be tended to. Numerous waterways and other water bodies in Jammu and Kashmir have become focuses of contamination due to an insufficient arrangement of garbage removal. The instance of stream Jehlum in Kashmir, which regardless of its reality renowned excellence, has been transformed into beneficiary of direct sewerage channel. In watered areas of Kashmir valley, where primary crop developed is paddy, huge measure of unwise manures particularly urea

is utilized to enhance plant supplements for their development and creation [2]. As the greater part of the manures applied to the yields are not completely consumed yet some portion of them stays in the dirt which through run off goes into the stream The Jehlum, straightforwardly from the catchments. Nitrogenous manure (urea) having overflow coefficient (5-30%) will in general store all the more promptly in the amphibian bodies as nitrate. Gathering of nitrogen in this structure alongside phosphorus causes eutrophication in water bodies, particularly development of green growth. Eutrophication becomes destructive for the amphibian life. The climate, financial development and advancement of Jammu and Kashmir particularly in Kashmir territory are profoundly impact by water, its local and occasional accessibility, and nature of surface water and microbiological parameters. These boundaries are firmly interlinked. In the present study, stream water not set in stone by estimating the convergence of some physicochemical boundaries and contrasting them and drinking water guidelines laid by World Health Organisation.

A. Material & Methods

Water quality boundaries of River Jehlum were checked at five different testing focuses: Lasjan, Ram MunshiBagh, Lal Chowk, SafaKadal, and Parimpora thinking about inspecting areas (getting mass amount of emanating either by city/modern/agribusiness bring stream back). All the Sites are shown below from Figure 1 to Figure 5, respectively showing Site 1 to Site 5.

B. Chemical Analysis

Water quality boundaries of River Jehlum were checked at five different testing focuses: Lasjan, Ram MunshiBagh, Lal Chowk, SafaKadal, and Parimpora thinking about inspecting areas (getting mass amount of emanating either by city/modern/agribusiness bring stream back).



Figure 1 : Site 1



Figure 2 : Site 2



Figure 3 : Site 3



Figure 4 : Site 4



Figure 5: Site 5

Table 1 : Assessed worth of water quality boundaries and endorsed restrictions of WHO

Parameter	Lasjan	Ram Munshibagh	Lal Chowk	SafaKadal	Parimpora	Standard Deviation	WHO Limit
Conductivity	0.38	0.41	0.41	0.4	0.3	0.046	0.3
pH	7.6	7.53	7.5	7.2	7.9	0.264	7-8.5
Alkalinity	71.8	61.12	79	88	90	11.92	100
BOD	27	23	23	32	35	5.385	6
COD	66.5	55	53.32	42.4	38.6	10.71	10
TSS	322	322	185	164	133	93.03	500
TDS	221	200.6	224.4	233.5	243.6	16.04	500
CL-	39	38.8	38.2	39.9	39.7	0.690	200
HCO ₃ -1	87.3	74.6	93.7	93.2	89.3	7.754	-
SO ₄	30.6	29	29.8	33.6	33.5	2.130	-
CA ₂ +	35.1	29.1	37	37.7	39.1	3.908	100
Mg ₂ +	5.8	6.4	6.1	6.1	6.2	0.216	-
NA+1	20.9	22.3	21.4	22.3	22.6	0.717	-
K+1	1.9	1.82	2.1	2.1	2.3	0.188	-

II. RESULTS AND DISCUSSION

The upsides of physicochemical boundaries, standard deviation and cutoff points endorsed by World Health Organisation are introduced in Table 1 [3]. The connection among alkalinity and carbonates is exceptionally related and with BOD and magnesium particles are tolerably related while alkalinity is pitifully related with COD and TDS. While talking about water quality, the terms alkalinity also hardness are frequently utilized conversely. These boundaries of stream water share a few likenesses however are particularly unique. Alkalinity might be an action of the corrosive killing limit of water. Alkalinity in regular waters is because of the presence of carbonate, bicarbonate, and hydroxyl anions [4]. Be that as it may, phosphates, borates, silicates and other essential compounds additionally add to alkalinity if present. This property is important to decide the reasonableness of water for water system and controlling and deciphering wastewater treatment processes. In the present review, the alkalinity esteems were greatest in Parimpora. This might be credited to increment in the pace of natural decay during which carbon dioxide is freed, which responds with water to shape carbonates, consequently expanding complete alkalinity in the stream [5]. The expanded alkalinity at Parimpora site was because of the convergence of supplements in water. Alkalinity is significant in light of the fact that it cradles water pH inside the framework. Without such buffering limit, little increases of bases or acids would bring about critical changes in the pH of water, which could be pernicious for oceanic life structures. Alkalinity likewise influences the appropriation of a few creatures inside water frameworks. The pH range was 7.2 to 7.9. The pH of most regular waters lies in the scope of 6 to 9 on account of the bicarbonate buffering. In the current review, the TDS and TSS values were greatest at Lasjan and Ram Munshibagh locales. High upsides of TSS might

be expected to siltation, disintegration, weighty precipitation and blending overflow downpour water which conveyed mud, sand, and so forth COD is how much synthetic oxidant needed for the oxidation of the natural matter present in the waste. Stream Jhelum gets high measure of natural matter which for the most part begin from homegrown and modern effluents on the bank of Jhelum River. In the current review, the COD esteems differ from 38.6 to 65.5. For biodegradation, this natural waste requires oxygen, causing critical exhaustion of disintegrated oxygen in stream Jhelum [6]. The oxygen fatigue influences not just biotic local area of the waterway yet in addition its refinement limit. High worth of COD shows that waterway has gotten high measure of natural matter. The low worth of alkalinity demonstrates that the compound answerable for decline in alkalinity is functioning as substance oxidant for COD and henceforth huge expansion in the worth of COD. The high worth of BOD recommend that oxygen present in water is consumed by vigorous microbes which makes fish, visually impaired and other sea-going species to think that it is hard to make due [7].

III. CONCLUSION

The following suggestions will help us to establish a more successful Water Quality Monitoring Program. The increasing concentration of residences along the river's banks should be investigated as soon as possible, since it will assist to reduce the amount of urban garbage entering the river. Furthermore, controls should be established for solid trash entering the river from diverse sources. Households on both banks should have access to low-cost sanitation as soon as possible. It is critical to take corrective action to prevent contamination of the Jhelum River by developing plans for environmental infrastructure projects to capture, redirect, and treat domestic and industrial wastewater. Around 85

dewatering stations in the Srinagar area discharge untreated sewage directly into the Jhelum River. These dewatering stations should have an appropriate disposal system installed. Sewage treatment plants should be built near the most densely populated areas.

ACKNOWLEDGEMENT

The authors would like to thank every single individual who helped them in either way during the study.

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